APPENDIX E
FIRE REGIMES

Fire regimes describe the frequency, severity, ecosystem effects, and extent of wildfire in natural or altered systems (Heinselman 1978, Agee, 1993). Fire disturbance is an important agent of change in the subbasin. Presettlement fire regimes were mapped using habitat type group, and terrain setting. See Map XXX. Fire regime classifications were adapted from Morgan et al. (1996) to more closely reflect local conditions. An assessment how fire and harvest disturbances have altered within fire regime areas provides information on likely trends in vegetation succession, wildfire behavior and effects, and insect and disease dynamics. See the fire disturbance discussion in Chapter 4.

VERY FREQUENT, NONLETHAL

This fire regime was applied to low elevation grasslands and ponderosa pine and Douglas-fir habitat types. Mean fire frequency ranged from 5-25 years. Most fire events were low severity. Mixed severity fire occurred occasionally, and stand replacement occurred infrequently. This fire regime is fairly common on low elevation, steep southerly aspects in the main canyons. It is thought to be the most highly altered since presettlement times. The likelihood of stand replacement has increased as fire intervals have been missed.

FREQUENT, MIXED

This fire regime was applied to low elevation grand fir habitat types in canyons influenced by rapid spreading fire from drier habitat types. Mean fire frequency ranged from 25-75 years. Many fires burned at low or mixed severity with localized more severe effects. Stand replacement occurred less frequently under severe burning conditions. This fire regime is fairly common on low elevation grand fir habitat types in the main canyons. It was also applied to high elevation open forests of whitebark pine and subalpine fir. Abundant rock and low fuel accumulations typically resulted in mixed fire effects in these high elevation settings. Fire suppression and mortality of whitebark pine have increased the likelihood of greater stand replacement in areas mapped as having this fire regime.

INFREQUENT, LETHAL

This fire regime was applied to mid and upper elevation, cool, dry grand fir and subalpine fir habitat types in uplands where fire spread is little impeded by drainage dissection, and where lodgepole pine was a common cover type. Mean fire frequency ranged from 75 to 150 years. A high proportion of fires burned at high severity. This fire regime was fairly common in headwater areas of the subbasin. These areas would burn similarly today, but perhaps over larger areas because of greater continuity of fuel conditions in the landscape. However, many areas in presettlement fire regimes of high frequency and lower severity are now more likely to burn with high severity over large areas.

VERY INFREQUENT, MIXED

This fire regime was applied to low elevation, moist cedar and grand fir habitat types on north aspects in canyons or on uplands. Mean fire frequency ranged from 150-300 years. About 50 percent of fires burned at high severity and 50 percent with more mixed effects. More extensive stand replacement occurred under severe burning conditions. This fire regime was fairly common in the west and north portion of the subbasin. Fire suppression has increased the continuity of fuels, and the likelihood of greater stand replacement or larger fires in areas mapped as having this fire regime.

EXTREMELY INFREQUENT, MIXED AND LETHAL

This fire regime was applied to wet cedar, grand fir and subalpine fir habitat types that usually occur along streams or on lower slopes of north aspects. Mean fire frequency could be more than 300 years. These areas usually only burned under severe drought and weather conditions, and then were likely to burn with severe effects. This fire regime is of limited extent in the subbasin. Fire suppression has little affected these areas directly. However, suppression effects in adjacent uplands may have increased the likelihood of fire and severe effects in areas mapped as having had this fire regime.